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THE DEVELOPMENT AND PRESENT ORGANIZATION OF ELEMENTARY SCHOOL GEOGRAPHY IN THE UNITED STATES*

By OLIVE J. THOMAS
Milwaukee-Downer Seminary, Milwaukee

THE GROWTH AND DEVELOPMENT OF ELEMENTARY GEOGRAPHY

THE elementary school geography of today is influenced by the ideas of two or three American geographers of the past century, who had for the most part received their stimulus from the great German and Swiss teachers, Ritter and Pestalozzi. The subject matter was slow in developing, and for years was restricted wholly to a ponderous treatise on geography by Jedidiah Morse—the first American geographer—whose first book appeared in 1789; but it was an advanced discussion of little practical value to the child.

W. C. Woodbridge (1794-1845) who had visited Pestalozzi in Switzerland, and who had spent considerable time with Ritter and Humboldt in Germany discussing the problems of geography, was the first to realize the very bad conditions of geography-teaching in the United States, and in particular the lack of a suitable text. Accordingly in 1833 he published a "System of Modern Geography", through which he hoped to make geography a science, though he by no means accomplished his task. He devoted a portion of his book to "Remarks to Inexperienced Teachers", in which he emphasized certain methods in geography-teaching, a phase which Morse completely omitted. Traces of these ideas and suggestions are to be found in the modern methods of teaching, as will be seen later.

Horace Mann (1796-1859) voiced similar ideas. He, too, had visited Europe, and had studied with Ritter at his zenith in Berlin. He describes the geography-teaching as follows:

"The practice seemed to be uniform of beginning with objects perfectly familiar to the child—the school house with the grounds around it, the home with its yards or gardens, and the streets leading from one to another. First of all the children were initiated into the ideas of space, without which we can know no more of geography than we can of history without the

*Prepared at the School of Education, University of Chicago.

ideas of time. Mr. Karl Ritter of Berlin—probably the greatest geographer now living, expressed a decided opinion to me, that this was the true mode of beginning."

Thus, through Woodbridge and Mann Ritter's ideas in practice in Germany were introduced into America in 1843. These leaders were, however, ahead of their time and their influence was little felt. No definite steps were taken to improve geography methods until Arnold Guyot (1807-1884) one of Ritter's best students came to this country. Having taught in Germany and Switzerland and having studied at the University of Berlin, he was thoroughly acquainted with German ideas; and through his influence, first as inspector and institute lecturer of the Massachusetts Board of Education (1848-54) and later (1854) as professor of Geology and Physical Geography at Princeton, the old "place and book" geography gave way to the "physical." His book, "The Earth and Man" (1849), was simply an elaboration of Ritter's work. It was the first attempt at humanizing geography, and emphasized the following points:

1. The forms, the arrangement, the distribution of the terrestrial masses on the surface of the globe, though accidental in appearance, yet reveal a plan which we are able to understand by the evolution of history.

2. The continents are made for human societies as the body was for the soul.

3. Each of the northern or historical continents is peculiarly adapted by its nature to perform a special part corresponding to the wants of humanity in one of the great phases of its history. Thus nature and history, the earth and man, stand in the closest relations to each other and form one grand harmony.

In 1868 Guyot published a book of methods—"Geography Teaching"—in which he attempted to put into practice the theories outlined in "The Earth and Man." Some type lessons were given in which the knowledge and interests of the children were used to develop the fundamental concepts. He advocated that the woods, animals, and the relations of the kind of land to the industries of the people, be made subjects of study.

It is granted today that such a method of instruction is beyond doubt the best, proceeding from the problems that are within the range of experience of the child to other geographical facts emphasizing the thought process rather than the memory —the development lesson.

After studying the inter-relation of the various industries

and their inter-dependence, Guyot proceeded finally to the study of direction, distance, globe, continents, and the world. Guyot's text books, however, were not widely used, partly because there were few teachers qualified to use them, and because he, as a university professor, was not familiar with elementary school conditions.

Following Guyot in influence was Colonel Francis W. Parker (1837-1902), president of the Cook County (Ill.) Normal. He was a follower of Ritter also, and had spent three years (1872-1875) in Berlin under the influence of Kiepert, a distinguished pupil of Ritter's and his successor in the University. In his books and teachings he constantly referred to Ritter and often to Guyot. Frye, a pupil of Colonel Parker, carried the influence further, and it is said that his "Elementary Geography" followed the subject and method which might be called Ritter and Parker geography. The same general trend is revealed in the geographical writings of Charles McMurry, though he may have been reflecting German methods also, since he is a graduate of Jena. He emphasizes the industrial side more than the previous authors.

One writer reviews the methods of early geography as follows: "At first there prevailed what might be named sailor geography. The pupil was compelled to memorize all the capes, headlands, etc. . . . He enlivened this to some extent by brief mention of the curiosities and oddities . . . such themes as would furnish good stock for sailors yarns." "Little or nothing was taught to give unity to the isolated details. . . . It was an improvement on this when the method of memorizing capital cities and political boundaries succeeded. With this came the era of map drawing."

Instruction in geography constantly improved with the introduction of new devices "to make plain and intelligible the determining influences of physical causes in producing the elements of difference and the counter process of industry and commerce by which each difference is rendered of use to the whole world, and each locality made a participator in the production of all." (Rept. Comr. Educ. 1893-94, vol. I, p. 504.) Guyot was undoubtedly the dominating influence in producing the changes and in bringing about the improvements.

Probably the most important factor in crystallizing the geography of the elementary grades into a definite and uniform course of study were the reports of the famous Committee of Ten of the National Education Association in 1893, and of the

Committee of Fifteen which followed it. The Sub-committee on Geography was made up of normal and college men such as T. C. Chamberlain and W. M. Davis, Israel C. Russell, and Francis W. Parker. The course of study as outlined by this committee does not differ to any great degree from that followed at present. The course was defined as follows:

1. *Elementary Geography,* a broad treatment of the earth and its inhabitants and institutions to be pursued in the primary, intermediate and lower grammar grades.

2. *Physical Geography,* a more special, but still broad treatment of the physical features of the earth, atmosphere, and ocean, and the forms of life and their physical relations, to be pursued in the later grammar grades.

3. *Physiography,* to be pursued in the later high school, etc.

In recommending this outline of study, the influence of Francis W. Parker, the great admirer and follower of Ritter, as previously mentioned, is clearly seen. The report declared that the arrangement of the work should be largely controlled by the systematic development of the three classes of activities: (1) the powers of observation, (2) the powers of scientific imagination, and, (3) the power of reasoning. The power of observation is necessary to furnish clear, accurate, and realistic fundamental ideas and modes of thought, which in turn are necessary as a ground work for the training of the powers of scientific imagination, which in turn is the only means by which the larger part of the matter of geography can be presented to the mind. Both clearness of observation and strength of imagination are essentials as a basis for safe reasoning. "First see, next reproduce, then study the production of others, and meanwhile ponder and reason on all." The Conference believed that the purposes of these various processes as expressed in the various types of geography were:

1. *Observational Geography*: (1) to develop the habit and power of observation; (2) to give pupils true and vivid basal ideas; (3) to arouse the spirit of inquiry and a thirst for geographical knowledge.

"This work of observation should begin with those features that lie immediately about the pupils; and so fall easily within the reach of their direct study and ready comprehension. . . . Observation should not only begin the work but should continue throughout the entire course of study and beyond. . . . Every

opportunity for observational work in geography should be eagerly embraced. . . . Exercises for the special purpose should be made as frequently as possible, formally or informally, in school hours and out of school hours, by classes and by individuals."

The organization of geography in the first three grades practically follows this outline, even today.

2. *Representative Geography*:

"Immediately after the making of observations, should come their reproduction in the form of descriptions, sketches, maps, models, etc. The great end of education is to create productive ability."

In addition, the fourth grade usually includes: (a) elements of industrial geography; the industries of the neighborhood; the natural conditions that permit of the productions of the home region. "Learn how man takes advantage of natural conditions and changes some to meet his needs." (Cf. Guyot.); (b) in some schools a text, "to serve as a reader, and an elementary survey of the United States and North America." At this time attempts are made to aid the children in understanding causal relationships.

3. *Derivative or Descriptive Geography.* Since the pupil's experiences and observations are limited, they must now depend on the observation and work of others. Thus descriptive geography comes to occupy a large portion of the time.

This is commenced in the third grade with geographical "story telling."

4. *Rational Geography.* "This phase of the subject which leads the pupils into the reasons of things, should be assiduously cultivated, for it is the soul of the science."

This broad treatment of the earth was recommended, because it seemed most serviceable to the majority of pupils during the only years when many would remain in school.

"It should deal not only with the face of the earth, but with the elementary considerations in astronomy, meteorology, botany, history, commerce, governments, races, and religions, so far as these are connected with geography. Unless this admixture of subjects is included under the elementary courses of geography, many scholars will not gain a knowledge of even the outline of these important subjects." (Special Report of the Committee of Ten, page 204.)

Following these reports a reform movement in geography-teaching spread over the country. Emphasis was placed, however, on the physical side of the subject, due perhaps to the personnel of the Committee. The first text for the grades to be published after the report of the Committee of Ten is reported to have contained 26% physical and mathematical geography, and 42% on the physiography of the continents; thus, about two thirds of the book was devoted to physical geography in which man and his work had only an incidental reference. But it did not appeal to the children. The mistake was soon discovered and the text revised. The pure physiography was reduced to 5%, and the political and commercial maps, which in the first book were placed at the end, regained their proper places, and were allotted nearly double the space. Texts have followed rapidly since, none returning quite to the old type, and yet placing more and more emphasis on the human side. "This is not because the facts of physical geography are less important than formerly, or because they are not an integral part of the subject; it is because children are not interested in such facts, unless they are closely associated with the lives and doings of people. . . . Physiographic facts as a rule, should be associated with their consequences as seen in the lives and doings of the people."

The Present Organization of Grammar Grade Geography

In the organization of the curriculum in geography in most schools today, a text is not introduced until the fourth or fifth grade, and here the subject tends to become mainly a memory training. In the state requirements, the work is specified as——————'s Geography to page .... for the first half year, and to page .... for the last half. Few observations are made, and too often the upper grade geography degenerates into a list of facts which the pupils recite to their teacher. Many attribute this condition to the unpreparedness of the teachers; for the normal schools, in general, do not provide adequate training for this work.

In many schools the fifth grade studies the world as a whole, while others study the United States, and North America; the sixth, South America and Europe; and the seventh, Asia, Africa, and the Islands. Supplementary readers are widely used. In some instances the study of the various continents is completed in the sixth grade, and in the seventh and eighth the subject is reviewed or restudied with special reference to the physical or commercial side.

Present Tendencies

Recently some states have begun to realize that rote learning is disasterous to the development of the geographical point of view of the pupils and defeats the purposes of geography. Hence such suggestions are made as: "In all the work, strive to make it something besides the memorizing of names." "Lead the class to see the effect of climate and soil upon products and industries, and why the large cities have grown up where they are" etc. "Closely correlate geography, history, literature, and language." "Make geography a thought study. Let over half of the questions demand thought rather than memorizing." "Require maps, flat, relief, and production." "Make the study alive." "Emphasize the life of the people."

In the Wisconsin report, a suggestion for preventing memory work in geography is made by calling the teacher's attention to the fact that the text is simply a geographical reader; others may be as good, and assignments should be made from them. Topics, oral and written, should be assigned, and the pupils taught how to use library books. Through the assignments, the pupils may be taugth how to study, and frequent reviews and outlines are recommended so as to organize the material studied.

In many reports, type questions for promotion are given. (See Wis. 1913—p. 207.) Specific data and outlines that the children should know are also set forth, and much of the teaching is guided by these. Year by year new facts and relations have been added until now there is a reaction, a cry that the subject cannot help but be a mass of facts under the present requirements. Accordingly a committee was appointed in Minnesota and its report on the elimination of subject matter in geography as well as in certain other subjects, tends to relieve the situation—at least for Minnesota. The committee believes that "greater emphasis should be given to a study of the United States by industrial divisions or sections, than to a study of the separate states; that the foreign countries should be studied with that degree of emphasis which is warranted by their commercial relationships with the United States; and that current events should receive attention in so far as they pertain to domestic affairs or to our relations with foreign countries." (See the Report.)

Summary

The present status of geography in the grades may be summarized as follows: The primary work consists of a study with special reference to the home geography and its relation to the world, the main object being the cultivation of observational

habits, and the laying of foundations for geographical thinking; the ability to see cause and effect. In the grammar grades however, the subject tends to become cut and dried facts, though the present tendency is to enliven the subject, and to restrict it so as better to meet the needs of the pupils.

Recent Development

It might be mentioned in passing, that the Chicago schools have organized their course in the eighth grade into two parts: one half year of geography review, and one half year entitled the "Chicago Course." The content is as follows: (1) Chicago—historical, geographical, and industrial; (2) the social and civic conditions of Chicago; (3) the improvements which are being planned for the betterment of social, sanitary and civic conditions; (4) the Chicago plan; (5) commercial geography of the city.

Miss Baber of the School of Education of the University of Chicago, has been influential in establishing in that institution, a course which, throughout the grades, especially emphasizes the human relationship of geography. The world as the home of man and animals; the control of the land forms on human development; life responses are emphasized, all illustrated by abundant pictures and frequent field trips. The reaction of the children is excellent and the results good.

Thus the tendency is to develop a home geography, and to include the social, historic and geographic influences which tend to mold the environment in which the child lives that he may better appreciate and understand his fellow men and their surroundings. (Compare with Guyot's ideas.)

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THE CARAVAN TRADE OF THE SAHARA

By Genivera Loft
University of Wisconsin, Madison

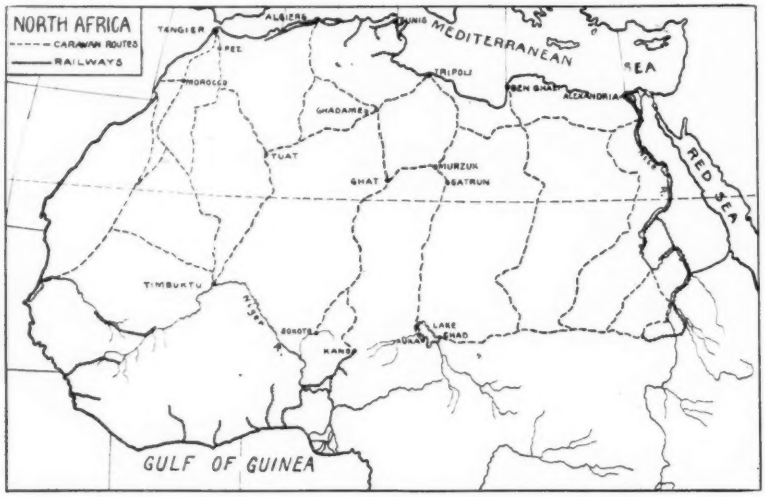
BETWEEN the Sudan and the Mediterranean lies the Sahara, with an extent from north to south of from 800 to 1400 miles and an area somewhat larger than that of the United States. Until comparatively recently, the coast cities of the Barbary States were the exporting points for the products of the Sudan and were the ports of entry for the European manufactured goods used by the natives of the Sudan. After the region came under the control of the Arabs in the 7th century, trade began to develop and well defined caravan routes were established across the Sahara. These routes constituted the commercial highways to and from the Sudan until within comparatively recent times when they have been largely abandoned because the region now has its main outlet to the south.

Caravan Routes

The main caravan lines have always extended from north to south across the desert, since their most important function has been to connect the Sudan with Mediterranean sea ports. Less important lines extended from east to west connecting with points on the Nile River and with the main north and south routes. The oases which are scattered throughout the desert determine the paths followed by the caravans much as coaling stations affect the course of steamship lines.

Because Tripoli is the Mediterranean port nearest to the Sudan, it came to be the focus of the three most important paths to the south. One of these terminates at Timbuktu, another one leads to Kano, the great distributing center of the central Sudan, and the third reaches Lake Chad. Caravan routes were developed also from Morocco, Algiers, and Tangier southward. In the east a route was established connecting Bengazi, on the coast, with Wadai and Darfur.

Between the larger oases, which determined the courses taken by the caravans, wells are located at intervals to provide water for the passing caravans and "fonduks" or caravanserais have been established. These fonduks are enclosures large enough to accommodate several thousand camels and are made



with walls high enough and doors sufficiently strong to protect the caravans from the attacks of the robber tribes of the desert. At the fonduks food is provided for both camels and men. Here, too, the caravan leader may exchange camels—a common occurrence—since it is unusual for one set of camels to make the complete journey across the desert.

The paths of the caravans extend through regions of varied character. In the sandy regions, which make up not more than one ninth of the total area, the tracks of a caravan are soon obliterated because of the constant movement of the sand. It is only the superficial layers which are affected, however; the main lines of dunes do not change their position but remain almost as fixed as mountain ranges.

In other parts of the desert the routes lead over great mesas or through rocky defiles in the mountains. The parts of the trails most easily traversed are those in the part known as the Reg. Here the rock forms a sort of natural macadam. The part known as the Hammada is the most difficult of all to cross. The rock is pudding stone and is so rough that it is exceedingly hard on the feet of both camels and men.

Along some parts of the route the paths made by the camels are sunken to a considerable depth below the general surface level. Where drifting sand quickly obscures the trail, the leader

determines his course either by landmarks which would be insignificant to the ordinary observer, or by means of the stars.

The Caravan

The number of camels in a caravan varies from 1,000 to 13,000, the average being about 8,000. Small caravans frequently unite for protection. Camels are obtained from desert tribes who make a business of raising them for caravan use. Caravan owners may either buy or hire the camels which they require to carry their goods.

A caravan is made up mainly of draft camels or "jemals." Each jemal can carry a load of about 300 pounds besides his driver. The drivers, however, ride very little. A jemal travels about 4½ to 5 miles an hour and covers 30 miles a day easily. The caravan usually halts for two or three hours during the hottest part of the day, except when in great need of water or in danger of attack. Long stops are made only at the oases and fonduks.

In advance of the main part of the caravan are men mounted on "mehari" or racing camels. This advance guard can travel at a more rapid rate than the main caravan. It is for the purpose of locating the wells along the route and of preventing surprise attacks.

Perils of the Caravan Routes

The sand storms which occur in the Sahara are greatly dreaded and with good cause. They last from two or three hours to several days. Not only are their direct effects painful but the wind is so drying that it often evaporates the water from the wells on which the caravans depend.

The lack of water is a very serious matter and may result from the drying up of the wells or from the failure of the caravan leaders to locate the wells along the route which he is following. Sometimes it is necessary to kill some of the camels to obtain the blood and the water from the reticulum, thus preventing death from thirst.

Another great danger which besets the caravans which cross the Sahara is that of attack by the robber hordes, of which the most powerful are the Tuaregs. In spite of the fact that caravan owners pay a considerable bounty to the petty rulers through whose territory they pass, they are not secure from sudden attacks by the Tuaregs. Caravan owners sometimes hire bands of Tuaregs to convoy them through territory where the danger of attack is unusually great; but it is not certain that their protection is as effective as it might be.

The Caravan Leaders

The leader of the caravan is chosen by the man who owns the outfit. Great care is taken to secure a man who is not only honest and trustworthy, but who has the ability to direct the other members of the caravan of which there may be several thousand. It is his business to organize the men so as to secure them, as far as possible, from surprise attacks; in order to do this he has authority over the caravan similar to that of a ship's captain. His knowledge of the route must be complete for the fate of the caravan depends upon his guidance. Salaries as high as $5,000 have sometimes been paid to a leader for a single trip.

Nature of the Commerce of the Sahara

The through or trans-Sahara traffic consists of the products of the Sudan on the one hand and of European manufactured goods on the other. The importance of this commerce has never been as great as the accounts of it would suggest and within the last three decades the decline has been so great that the value of goods is at present insignificant, amounting to considerably less than a million dollars annually.

Until the closing years of the 19th century the slave traffic across the Sahara was very important. Since that time the most important articles of trade going northward have been gold dust, ostrich feathers, ivory, and tanned goat skins. Of these products of the Sudan the only ones to reach the United States directly are the goat skins which are sent to New York to be used in the manufacture of gloves and shoes. From the north are brought manufactured goods from Europe, and grain, cheese, and wool from Algeria and Tunis. British cotton goods constitute about half the value of all the south-bound products.

Since the oases along the caravan routes are collecting and distributing as well as consuming points, the local trade is of considerable importance. The desert has a population of between two and three millions which must depend upon the caravans for everything not produced locally. The two chief products of the Sahara itself are dates and salt. From the neighboring regions small caravans bring dates to the oases and exchange them for other caravan transported goods. The movement of dates along the main lines is northward, while salt, which is produced chiefly in the region about Bilma, is carried southward.

From Tripoli two large caravans left for the Sudan each year in former times. The first one started in April, reached Timbuktu about the end of May and remained there until the first of October. The second one left Tripoli early in October

and returned early in May. Caravans did not cross the desert during the summer.

Although some of the caravans made the complete journey across the desert from the Mediterranean to the Sudan, not all of the traffic was carried on in this way. At the larger oases such as that of Tafilet and Ghat goods were brought to the annual fairs where merchants from the north met those from the south and exchanged wares.

Decline of the Trans-Saharan Caravan Trade

Since the middle of the 19th century the trans-Saharan traffic has been declining, and especially since about 1890 has there been a marked decrease. During the last half of the 19th century the value of goods declined from 10 or 15 million dollars, to less than 2½ millions. The decline has continued so that it is said to amount to little over half a million dollars at the present time. Tripoli, which at one time was the most important exporting point for Sudan products, now has dates and esparto grass of local origin first in value in its list of exports. The value of both the imports and exports of Tripoli is only about one million dollars and this includes such products as the sponges from the fisheries of Tripoli.

Since the coast to the south and west of the Sudan is the natural outlet for the region, it was to be expected that commerce would be diverted from the trans-Saharan routes. With the establishment of steamship lines to the south coast and the development of railroads in the Upper Niger region the inevitable has come to pass. Caravans crossing the Sahara are fewer in number and smaller in size. Along the Mediterranean the building of railroads in the coast region has put an end to the east-west caravan trade.

The adverse weather conditions, the danger of attack by desert tribes and the heavy expense involved have only hastened a change which was bound to come with the extension of steamship service to the region of the Guinea coast. When it is recalled that a single camel can carry only about 300 pounds it is evident that with a caravan consisting of 10,000 camels, only 1500 tons can be carried, an amount insignificant compared with that which an ocean going vessel can carry; and only equal to a freight train of fifty cars.

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WHAT IS STANDARD TIME?

THE above question was asked in an examination in Geography in a Middle Western State University. The clearness of the answers, given verbatim, is remarkable, especially in view of the fact that practically the only kind of time with which the students have to do is Standard Time.

Standard time is divided up into sections of land. The sections are divided up by the sun.

Standard time is the result of the sun upon the earth.

Standard time is the adopting of a certain regular hour in a given part of the country.

Standard time is time adjusted so as to allow for the rotation of the earth.

Standard time is the way of telling time. It is used in the U. S.

Standard time is the division into minutes and hours of day and night for the sake of convenience.

Standard time is the time acknowledged by the government to be certain time in various parts of the U. S.

SOME MOVEMENTS OF STATE CENTERS OF POPULATION AND THEIR SIGNIFICANCE

By ROLAND M. HARPER
College Point, N. Y.

ALMOST every important invention or discovery, or agricultural or industrial development, or change in environment, is soon followed by a shifting of population toward the region affected by it. To take one of the simplest illustrations, the discovery of America by Columbus in 1492 was felt sooner or later throughout the civilized world; and one reason why the West is more sparsely settled than the East today, and America than Europe, is that an equilibrium between the old and the newly-discovered regions has not yet been reached. Every discovery of useful minerals of course attracts population, as does the discovery or development of crops adapted to regions previously regarded as unpromising agriculturally, and of fertilizing materials to ameliorate sterile soils.

The invention of numerous kinds of labor-saving farm machinery has made agriculture more profitable and the population denser in some semi-arid regions, but at the same time it has decreased the rural population of some fertile and long-settled regions; for as the farmers become more efficient fewer of them are needed to cultivate a given area, and some then have to seek a livelihood elsewhere or in other occupations. Inventions lead to the building of more factories, which are usually in or near cities and thus contribute to the growth of the cities. (The rapid growth of Detroit since the invention of the automobile is a typical case.) The urban population has increased faster than the rural throughout the United States, and in other civilized countries, ever since the first census was taken, and is likely to continue to do so as civilization becomes more complex, in spite of the much talked-of "back to the farm" movement, and various schemes for making farm life more attractive.

New agricultural empires are being opened up by dry-farming methods and by irrigation and drainage projects,* with consequent rapid increases of population; and every new railroad that is built causes a re-distribution of population in its vicinity. If railroads had never been invented the population of the United States would undoubtedly have increased much more slowly.

It seems likely that the increase of population is not a steady and inevitable process, as Malthus supposed something over a

*See Bull. Am. Geog. Soc. 47:209-210. March, 1915.

century ago, when he predicted that the population of the earth would soon be too large for the available food supply, but depends largely on inventions and discoveries. Authorities agree that the human race has increased in numbers in the last 100 years (which is since the time of Malthus) faster than in any previous century*; and this has been precisely the period of the greatest inventions of mankind. As far as we know the number of wild animals and plants of each species, and of savages, would remain practically the same from one century to another, (barring the interference of civilized man), for they do not as a rule invent or discover anything. (Of course with the lapse of ages some animals become extinct and others dominant, but those changes are probably correlated with geological changes of environment as much as with the innate qualities of the animals themselves.)

Population may also decrease from various causes, such as the exhaustion of mines, forests or soils, vicissitudes of climate, and calamities of one kind or another. Ellsworth Huntington has shown that many arid and almost uninhabited regions had considerable population a few hundred or thousand years ago, presumably indicating that their climate was once moister. Secular changes of that kind are usually so slow that census returns (which have been used only since 1790) give no indication of them; but sometimes a short series of wet or dry years causes a marked shifting of population, as happened in the Great Plains a generation ago. (This will be discussed below, under Kansas.) In Florida the freezes of 1895 and 1899 gave the orange industry a severe setback and drove many people out of the state.

With these principles in mind, the movements of the center of population in each state, as shown for each of the last four censuses in the Statistical Atlas of the United States published by the Census Bureau in 1914 (pp. 29-34, pls. 119-132), furnish an interesting field for study; for the position of the center responds to every movement of population except a uniform increase. The writer is not yet prepared to explain the movements of population in every state, but perhaps some interested reader can supply information for those cases that are omitted or imperfectly explained. A few cases have already been partly explained in the Statistical Atlas.

In Alabama the center of population has remained ever since 1880 within a few miles of the geographical center of the state, in Chilton County. This probably indicates that the great

*See articles on Malthus and on Population in any good encyclopedia.

industrial developments in the Birmingham district have almost exactly counterbalanced the migration of farmers toward the sandy pine lands (discussed by the writer in the October number of this journal). Another point to be considered is that there is considerable sandy land in the northern half of the state, outside of the pine-barrens proper, which has felt the stimulus of fertilizers, and the pine-barrens in the south are above the average of the whole pine-barren region in fertility, and therefore have not responded so conspicuously to applications of fertilizers as has been the case in Georgia and Florida.

In Arkansas, too, the center, a few miles northwest of Little Rock, has moved very little, but since 1890 its trend has been southeastward, probably on account of the attraction of the largest city, Little Rock, and also on account of drainage operations in the alluvial lands in the southeastern quarter of the state.

In California the center has moved southeastward in thirty years from a few miles west of Stockton to a few miles west of Fresno, at the phenomenal rate of over three miles a year. The development of the Imperial Valley and other arid regions in the south is doubtless largely responsible, and that in turn has been facilitated by improved methods of making concrete dams and aqueducts.

In Connecticut the center, though remaining within a few miles of Meriden, has moved steadily southwestward, probably on account of the growth of the manufacturing cities in that quarter of the state.

In Delaware the movement has been even slower, but steadily northward, the attraction doubtless being Wilmington, the largest city, which now contains over 40% of the population of the state.

In Florida the movement has been generally southwestward from the richer toward the poorer lands, but in 1890-1900, the decade of the two severe freezes, it moved almost directly westward, away from the orange-growing regions.*

In Georgia the center has been throughout the thirty years in Jones County, near the geographical center, but the movement in each decade has been southeastward toward the pine-barrens, whose development since 1880 with the aid of German potash, Chilean nitrate, and Florida phosphate was described in the October number. (In the last five years there has been considerable agitation in favor of removing the capital from Atlanta to Macon, which is very near the present center of population.)

In Illinois the center has moved in a general northeasterly

*See Geog. Review, 2: 361-367. Nov., 1916.

direction about a mile a year, from near Bloomington to near Pontiac; Chicago evidently being the magnet.

In Indiana the center of population instead of moving toward Indianapolis has steadily receded from it in the direction of Chicago, probably on account of industrial developments around the south end of Lake Michigan, and agricultural developments in the sandy lands and Kankakee marshes in the same quarter of the state.

In Kansas in 1880-1890 the center moved westward about 25 miles, evidently on account of a few years wetter than usual in the semi-arid western portion of the state, which caused a vast migration of farmers in that direction. But normal climatic conditions soon returned, making successful farming on the Plains almost impossible, and the boom collapsed about 1893. In 1900 the center of population was nearly back to where it was in 1880, but by 1910 the westward movement was again in progress, more slowly than before, but with a surer basis of irrigation in the valleys and dry-farming on the uplands.*

In Kentucky and Maryland there have been no striking developments in the last thirty years, and the centers of population have not moved much. The same might be said of Massachusetts, where although the increase of population has been rapid, chiefly on account of manufacturing, it has been pretty uniformly distributed.

In Michigan the influence of the automobile industry in Detroit is perceptible in the last decade.

In Mississippi the movement of population has been southward toward the pine-barrens, as in Georgia, and at about the same rate.

Missouri shows a southerly and southeasterly migration, probably correlated at least in part with drainage operations in the alluvial region in the southeast, as in Arkansas.

The movement of the center of population in Nebraska has been similar to that in Kansas, and doubtless for the same reasons.

In Nevada the center has moved rather erratically, probably in response to mining developments.

In New York the prevailing movement has been southward, mostly in the direction of the largest city. (See Brigham, Geog. Review, 2:209. Sept. 1916.)

*For a comprehensive account of the rise and fall of the great wave of immigration in western Kansas and contiguous territory see W. D. Johnson on The High Plains and their Utilization, in part 4 of the 21st and 22nd annual reports of the U. S. Geological Survey, 1901 and 1902.

In North Carolina the center has been in the western half of Chatham County for 30 years, but has moved always westward; the growth of cotton and furniture manufacturing in the Piedmont region apparently outweighing that of agriculture in the pine-barrens.

In Rhode Island the center has moved slowly but surely toward Providence, at the rate of about 229 feet a year.

In South Carolina there is less contrast in soil fertility between the Piedmont region and the coastal plain than in either of the two adjoining states, and consequently the effects of the discoveries of fertilizing materials in the second half of the last century have been less marked. The center of population has been within a few miles of Columbia during the three decades, but has moved slowly northwestward, doubtless on account of the development of cotton manufacturing in the Piedmont.

Tennessee, like its neighbor Kentucky, has shown very little shifting of population. The movement in 30 years has been eastward, however, perhaps on account of agricultural developments on the sandy Cumberland Plateau as much as anything else.

Things have apparently been pretty quiet in Vermont, as in New Hampshire.

In West Virginia the center of population has been moving steadily southwestward, possibly on account of the opening of new coal mines in that direction.

EDITORIAL

Economic Geography in the High School

As a high school study, commercial or economic geography is growing notably, while physical geography is declining. The movement to introduce general science means that a considerable number of small high schools must displace some other science, usually physical geography, in order to make room for the new General Science. If the outworking of this movement shall result in bringing into the high schools a *thoroughly creditable* type of economic geography, the change will perhaps be no loss to geography, or to the high schools. In the larger schools physical geography will remain as an elective, as it probably will in most of the smaller high schools.

For years commercial geography was not favored by thoughtful school men because it appeals mainly to the pupil's memory and develops the judgment and reason but little, and the

statistical side of the study is generally over-emphasized. The question now is,— Can economic geography be so presented that it will be an efficient instrument of education? That it will be so presented in a majority of cases is not so sure.

The pupil's attitude of mind toward any study is a matter of importance. If he believes that the study which he is pursuing will benefit him in his life work, he attacks that subject more aggressively than if he does not see any practical value in it. Unfortunately, most young people are inclined to estimate the value of a study according to its probable usefulness in gaining a livelihood. Commercial geography appeals to many students because it has in it the suggestion of money-making.

Our school boards and school directors are yielding to the tendency of the age to emphasize vocational and practical studies at the expense of purely cultural or disciplinary ones. Whether this trend is fortunate or unfortunate remains to be seen, but the trend is nevertheless strong and persistent. This being the case, the question is squarely before the geographers of the country,— Can we so organize economic geography that it shall be more than a mere "practical" study?

Certain cautions must be observed: (1) Statistics must be reduced to a minimum. (2) We must avoid *long* lists of productions, manufactures, exports, and the like. In the case of most countries it is necessary to speak particularly only of the productions in which the country is a *leader*. If the general climatic conditions of a country are understood, pupils may simply learn that the country can and does produce in larger or smaller quantity the crops characteristic of that climate, but that it specializes in a few things and furnishes these in large quantity to the world's trade. For example, Great Britain manufactures hundreds of articles, but her manufacturers specialize in a few lines; notably cotton, steel, wool, and ships. In the case of Germany a similar fact holds true. The Germans manufacture in greater or lesser quantity nearly everything that Americans and English manufacture, but they have attained leadership in a few items such as dyes, chemicals, beet sugar, and scientific apparatus. The French have attained a similar leadership in silks, velvets, laces, embroideries, and other high-priced textiles, and in wines and articles of ornament. Denmark is a splendid example of efficiency in specialized and cooperative agriculture. Holland is a great mercantile nation whose rich colonies in the East Indies supply valuable commodities to the Dutch merchants, and whose position at the mouth of the Rhine, gives the Dutch exporters and importers an advantage in mercantile operations; Holland's for-

eign trade is greater than that of Russia. Belgium, with its coal and iron, has made a record as a manufacturing nation, especially in the manufacture of iron and steel. Norway, with its bleak mountains and indented coast, has attained a high reputation for its seamen. So it is with nearly every nation; while it does a great variety of things very much like other nations, it usually does a few things in a superior way. These are the things which deserve emphasis. If this emphasis is properly placed the different countries come to have an *individuality* in the pupil's mind. He thinks of them as possessing special and interesting traits and each country comes to have a personality.

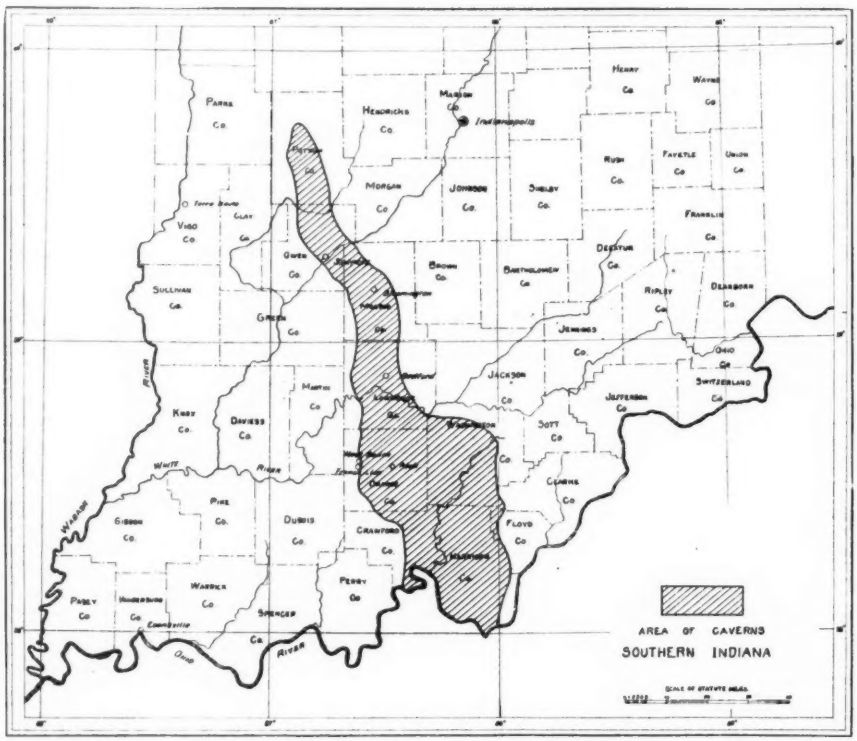
Economic geography should consist, in part at least, of practice in sizing up the various commercial nations of the world, in appraising them, so to speak; in gaining an appreciation of their agricultural and mineral resources, the peculiar genius of their people, the strength or weakness of their government, the efficiency of their education, their nearness to other countries whose trade is profitable, their access to the sea or lack of it, their defense against enemies, etc.

The study of the geography of different countries should be somewhat like the study of the character of important figures in history. We try to ascertain what qualities in Washington, Franklin, and Napoleon, made them great among men. So we note that certain countries like Germany and Great Britain and France possess qualities which make them great among nations. Our study of geography should be an effort to evaluate these elements of greatness in the different countries and to discover why they bulk large in the world's affairs. Sometimes the most important elements in the nation's life are geographical, but it would be a mistake to ignore non-geographical elements if they are of fundamental importance. For example, no one considers that the German nation is what it is simply because of its geography. Undoubtedly its geographical position, surrounded by potentially hostile nations, wedged in between rivals if not enemies, has stimulated the people to greater activity and preparedness than would otherwise have characterized them. Nevertheless, German efficiency and thoroughness of organization are matters which have been instilled into the German nation by the leaders of thought within the nation. Any satisfactory study of Germany, therefore, requires a consideration of the genius of the German people, of the French people, of the Swiss, of the Japanese, and so on throughout the list. If economic geography shall include this sort of character-study of nations, it will be one of the most valuable studies in the curriculum. Every educated

person desires this sort of knowledge. Every man who shall be raised to leadership, in a small way, or a large way, will appreciate having received this sort of instruction.

AREA OF CAVERNS IN SOUTHERN INDIANA

THERE are many caverns in southern Indiana. The greater number and most important are in the counties of Crawford, Harrison, Orange, Washington, Lawrence, Monroe, and Owen. These counties are underlain by 250-350 feet of limestone. The caverns have been formed by underground water which dissolves the limestone along lines of underground drainage and carries it away.



The solution of limestone along a line of underground weakness or drainage usually results in a cavern that is very long in comparison with its width. Some of the caverns are more than a mile in length and are much like railroad coaches in a train. That is, the caverns consist of rooms joined by narrow passages. Some of the rooms are very large. A room in Wyandotte Cave, known as the Hall of Representatives, is 100 x 60 feet with a ceil-

ing 35 feet high. In order to visit all the rooms of this particular cave one has to travel almost 5 miles. Not all of the many caverns are large. From the dimensions mentioned above they range in size down to mere crevices in the limestone.

To name all the larger caves or caverns of this region would be almost useless here. Wyandotte Cave in Crawford County is second in size in the United States. (Mammoth Cave, Kentucky, is first). But for great halls, columns, and domes, Wyandotte Cave is not excelled by any known cavern in the world.

In some of the large caverns the drainage system is so extensive that the streams become brooks ("underground rivers") flowing from pool to pool. The pools of water are often described as "lakes." Both plants and animals which are found in the caverns have adapted themselves to the underground conditions.

In going across the cave region one can see many kettle-shaped depressions known as sink holes. Some sink holes are only a very few feet across while others are many rods in diameter. The sink holes are due to the solution of limestone near the surface.

M. K. Davis.

SMYRNA AND ASIA MINOR

SMYRNA is not only the chief port in the Levant, but it is also the gateway to Asia Minor. In spite of the fact that this region was the cradle of ancient civilization, almost as little is known about certain parts of the interior as of Abyssinia or Tibet. The city of Smyrna has about 400,000 inhabitants, half of them Greeks. Camel caravans, mosques with their towering minarets, cypress groves and the picturesque costumes of the people generally, give it a distinctly oriental character.

Before the many wars in which Turkey has been engaged during the past few years became a disturbing feature, considerable commerce was carried on with the United States through the port of Smyrna. Asia Minor is a virgin country. Before the Italian-Turkish war of 1911 the capitalists of England, France and Germany began to turn their attention that way. The German campaign began about 1888 and was followed up with energy and profit. Before the present war broke, German capitalists had loans in Turkish securities amounting to $293,000,000.

Chief among the natural riches of Asia Minor are the vast forests which cover the interior mountain ranges of the country. In the Vilayet of Smyrna, for example, there are 1,600,000 acres

of valuable woodland, which comprises nearly one-eighth of the entire vilayet or province. In the Vilayet of Adana there are 1,200,000 acres of forest. Immense quantities of the best timber are consumed annually throughout Asia Minor in preparing charcoal, and, much to the detriment of the climate and soil what is chopped down is never replanted. On the shores of the Black Sea the coalfields of Heraclea form an actual source of vast potential wealth to the Turkish Empire. The beds extend along the shores of the Black Sea for nearly forty miles and run inland, coming to an apex at Angora, a distance of nearly two hundred miles.

The coal, though lying in very thick seams, contains too many impurities for it to compete successfully with English coal, except after being hand-picked and screened. Before the war there was only one company with a washing and screening plant, and this limited the output to some 600,000 tons per annum. There is no reason why, with increased washing and picking facilities, this coal could not entirely replace the imports. In other parts of the empire there are also deposits of mineral oil, but want of proper communication with the outside world has thus far rendered it impracticable to exploit them. Should the plan of Sir William Willcocks ever materialize—namely, to irrigate the fertile plains of the Tigris and Euphrates and make them as productive as they were when the cities of Babylon and Nineveh were at the height of their power—Turkey might become one of the great cotton and grain producing countries of the world. Even in the Province of Smyrna nearly two-thirds of the land remains uncultivated.

Generally speaking, the methods of tilling the land of Asia Minor are still very primitive. In many respects but few changes have been made since ancient times. It is only in recent years that Turkish farmers and large land owners, for example, have begun to relax somewhat in their attitude toward modern innovations. Formerly they were satisfied with small returns sufficient for their own use. The number of those busily engaged in agricultural pursuits in the Vilayet of Smyrna may be placed at half a million, of which two-thirds are Turks and one-third Greeks. The Mohammedan peasants are partly domiciled and partly nomads and shepherds. The domiciled Turks are honest and industrious, devoting their attention to tilling the soil. The nomads and shepherds, on the contrary, wander from place to place with their herds, often squatting on the property of others, from which they are difficult to eject.

The Greek peasants are also industrious and intelligent. As

the mountain ranges and districts along the seacoast inhabited by them, together with the islands of the Archipelago, are too dry, on the whole, for the planting of cereals on an extensive scale, the Greeks mostly turn to raising goats and cultivating vineyards. The Greek peasants in the Symrna Vilayet usually have a comfortable little home in some one of the country villages. The farms in the Vilayet of Smyrna consist of large estates (tschiftlicks) and small peasant holdings. As a rule the houses consist of two rooms only, one above known as the harem, which has lattice windows and is surrounded by a veranda, and the other below, which serves as a kitchen and dwelling place generally. These rooms are characterized by large fireplaces, in which food and coffee are cooked, and straw mats and carpets stretched out before them, upon which the occupants of the house recline at will. The room decorations are meagre, as pictures of any kind in Turkish households are very rare, and chairs, beds and other substantial pieces of furniture are only just beginning to be used in a few dwellings in each Turkish village. In every Turkish village there are one or two mosques.

Flax, hemp, and tobacco are cultivated somewhat systematically on the large estates. The farmer in the district of Smyrna usually divides his fields into three categories, namely, that which is set apart for spring sowing, fall sowing, and that which is left entirely uncultivated as pasturage for live stock. On such farms as have no modern plows a part of the earth remains unturned, which means that in a climate like that of Smyrna, where dampness exists from the middle of November until the middle of March, the roots of the growing grain become choked by weeds. The harvest is cut with scythes, and the peasants still use the most primitive methods of threshing. Horses and oxen tramp upon the sheaves until the grain is completely separated from the straw. Sesame, beans and flax are not threshed with a flail, but with sticks. Indian corn is not systematically tilled as in the United States, but scattered over the field without any regard to rotation. It is grown only for fodder, and not allowed to ear, nor is it probable that it would ear under such conditions of cultivation.

Naturally the future of Smyrna and of Asia Minor depends very much upon the outcome of the present war. No lasting result can be achieved in that country unless something substantial is done to guarantee the safety of person and property. The lack of this, more than anything else, has kept the country back in the past. Brigandage must be thoroughly stamped out and the law courts must be reformed, so that both the native Turk and

the foreigner residing in that country may get justice. Radical changes along these lines will open up to international commerce one of the richest countries in the world.—[Excerpted from *The Americas* for Dec., '16.]

THE WORLD'S PETROLEUM

NO one realized in 1859, when the first oil well in the United States was bored on Oil Creek, Pennsylvania, that a new industry had been started, which in fifty years would revolutionize the world's method of obtaining light, heat and power.

Petroleum is probably second to no other mineral in its importance to the well-being of mankind. Sixty years ago more than half the world lived a large part of its night hours in darkness for want of a suitable light. The ordinary kerosene lamp is one of the great inventions of the world, because of the great service and benefit it has been to mankind in every quarter of the globe.

The usefulness of petroleum, however, is not confined to lighting the world. For some time it has been used as a fuel on both sea and land. Most of the vessels on the Pacific coast of America and on the Caspian Sea and Volga River, and many of the railroads in California, Mexico and Russia use fuel oil.

Few realize that the world is in the midst of a revolution as radical as that which transformed the industries and commerce of the nineteenth century. While coal and steam will not cease to be used for fuel and power, they will nevertheless be less important than during the last century. The internal combustion engine, in which oil is used as a source of power, is taking the place, not only of the engine in which the steam is produced by the use of coal, but even that of steam engines in which the steam is produced by fuel oil. A pound of petroleum used in a Diesel engine will propel a vessel as far as three pounds in a turbine, or four pounds in an ordinary steam engine.

Mineral oils are divided into two broad groups. The light oils, such as come from Pennsylvania and Rumania, which are rich in paraffin, are said to have a paraffin base and are known as paraffin oils. The heavy oils, such as are found in California, Mexico and Russia, which have an asphaltic base, are known as asphaltic oils and are the principal source of fuel oils.

From 1859 to 1915, 6,017,000,000 barrels of oil were marketed and the annual foreign trade in it in these later years amounts to upwards of $500,000,000. Of this output, the United States produced 60 per cent, and Russia 28 per cent. The Dutch East In-

dies, Galicia, Rumania and Mexico each produced about 2 per cent, and all the rest of the world about 3 per cent.

The following table shows the progress of the world's production of petroleum by decennial years, and also that of the leading producing countries.

WORLD'S PRODUCTION OF PETROLEUM

	Barrels of 42 gallons each			
Year	Total	United States	Russia	Rumania
1860	508,578	500,000	.....	8,542
1870	5,799,214	5,260,745	204,018	83,765
1880	30,017,606	26,286,123	3,001,200	114,321
1890	76,632,838	45,823,572	28,691,218	383,227
1900	149,132,116	63,620,529	75,779,417	1,628,535
1910	327,615,503	209,557,248	70,336,574	9,723,806
1915	426,892,673	281,104,104	68,548,062	12,029,913

Mexico, 1915, 33,000,000 bbls. Dutch East Indies, 12,000,000 bbls.

From the above table it will be seen that since 1860 the United States has been the leading producer in each decennial year, except 1900, when Russia produced one-half of the world's output. The Dutch East Indies do not appear until 1900, and Mexico not until 1910, while Rumania, although producing as early as 1860, did not become important until 1910. The increase in the production, and therefore of the consumption, has been very great. In 1915 the United States produced nearly twice as much as all the rest of the world.

THE FIVE OIL FIELDS OF THE UNITED STATES

There are five important oil fields in the United States:

1. The old Appalachian oil field which was for many years the main source of supply and includes western New York, western Pennsylvania, West Virginia, eastern Ohio, Kentucky and Tennessee. In this section there has been a great decline. Pennsylvania and New York, which produced 33,000,000 barrels in 1891, only marketed 9,000,000 barrels in 1915, and the whole region, which produced 36 million barrels in 1891, only marketed 24 million barrels in 1914.

2. The Ohio (Lima), Indiana and Illinois oil fields. Some of these oils had a large quantity of sulphur, but that difficulty has been overcome. Nevertheless, there has been a falling off in the production of this region, from 37,000,000 barrels in 1907 to 27,000,000 in 1914.

3. The mid-continent field, including Oklahoma, Kansas, Colorado and Missouri. This section produced 22,000,000 barrels in 1906 and 85,000,000 barrels in 1915, mainly in Oklahoma.

The oil of this region is of a very high grade and from it large quantities of gasoline are made.

4. The Gulf field, along the coast of Texas and Louisiana, produced 36,000,000 barrels in 1905, but fell off to 13,000,000 barrels in 1914. These oils contain asphalt as well as sulphur and are somewhat similar to the Russian oil.

5. The California field, producing oils that are black, viscous and asphaltic. Most of it is used for burning under boilers and large quantities of it are exported to Europe. The production in this field is rapidly increasing, reaching 100,000,000 barrels in 1914. The output declined in 1915 to 89,000,000 barrels, largely because of the overproduction in previous years and consequent discouragement of production. The California and the mid-continent fields are the most likely ones to show large increases in the future.

Russia, Mexican, East Indian and Rumanian Fields

Russia is the second largest producing country, with an output in 1915 of 68,000,000 barrels, nearly all of which is obtained from wells on the Caspian Sea. In 1915 the wells in the Baku region produced 80 per cent of the output, and Grosny, also on the Caspian, 15 per cent. Baku oils are asphaltic and most of their output is marketed as kerosene and fuel oil.

Mexico, which only produced 220,000 barrels in 1904, had an output of 33,000,000 barrels in 1915, and this despite the fact that some of the wells were not operated owing to the unsettled condition of the country. It is estimated that if all the wells which have been sunk were permitted to flow to their full capacity, the total production would be 150,000,000 barrels. The most important wells are near the Gulf coast and Tampico and Tuxpam are the chief shipping ports.

The Dutch East Indies produced 12,000,000 barrels in 1915. Of this, 58 per cent was produced in Borneo, 30 per cent in Sumatra, and 12 per cent in Java.

The United States exports more than all other producing nations combined. The exports of mineral oil during the fiscal year ending June 30, 1916, amounted to 58,000,000 barrels, or about twice as much as in 1906.

Of all the different kinds of mineral oil exported from the United States, that of illuminating oil is the most widely distributed, for kerosene from the United States is preferred above all other, especially in the Far East. Of the 1,157,000,000 gallons exported in 1914, 710,000,000 gallons were to Europe; 272,000,000 gallons to Asia; 70,000,000 gallons to South America; 39,000,000

gallons to Oceania; 34,000,000 gallons to Africa, and 29,000,000 gallons to North America. The decrease of 335,000,000 gallons in 1916 was mainly in the trade to Europe, which fell off 280,000,000 gallons.—[Excerpted from article by John J. Macfarlane in *Commercial America,* Oct., 1916.]

RECENT PUBLICATIONS

OCEANIA—A SUPPLEMENTARY GEOGRAPHY. James F. and Arthur H. Chamberlain. Macmillan Co., 1916. 160 pp. 55 cents.

This little volume is the last of the series entitled "The Continents and Their People." It deals with a region of intense interest and certainly of unique character. The aims of the book is "to show in an interesting manner, the relationships between human life and its environing conditions, and to adapt the material to the ability of the pupil." The first part of the purpose has been attained, while the second part can only be positively realized after children have used the book.

It is a bit unfortunate that this Reader is not quite up to the high standard set by the other books in the series. Even the mechanical make-up of the book is somewhat lacking in quality. This however, may be due merely to the scarcity of good materials at present.

More exact references to maps and photographs would be very desirable. The use of the term "Torrid Zone" might well be eliminated in preference to "Tropical Zone."

It is regrettable that the book could not be somewhat larger in number of pages in order that more space could be devoted to Australia, to the Philippines and to the Hawaiian Islands. It is to be hoped that the authors will some day write a book on Australia alone and another on the rest of Oceania.

The style is good; the poetry here and there adds variety. In spite of the few adverse comments above, it may well be said this book rounds out a series worthy of merit.

EUGENE VAN CLEEF.

THE SMALL GRAINS. By M. A. Carleton. xxxii+638 pp. Diagrams, illustrations, bibliography and index. The Macmillan Company, New York, 1916. $1.75.

An agricultural text for college students by a cerealist in the United States Department of Agriculture which merits the attention of geographers. In this book we have an expressed recognition of the importance of teaching to agricultural students the geographic conditions which under-lie crop production and distribution both at home and abroad. The importance of geographic factors was emphasized by Hunt in his Cereals in Amer-

ica. Mr. Carleton has gone a step farther and has given his readers not only a list of favored soil and climatic conditions for each grain but also a brief association of the local geographic conditions with the production of cereals in each important region of the world. Other phases of cereal culture of interest to geographers are discussed under the chapter headings Cereals Under Irrigation, Uses of Cereals and Cereals in Commerce. The literature of agriculture is full of incidental geographical material but seldom is it so intentionally put in the fore-ground or so carefully organized as in this recent publication.

V. C. F.

NOTES

The Journal of Geography is pleased to announce to its readers that Mr. George G. Chisholm, widely known economic geographer of the University of Edinburgh, Scotland, has accepted an invitation to act as contributing editor for the British Isles. Mr. Chisholmn takes the position on our staff long filled by the late Professor A. J. Herbertson of Oxford.

It is also a pleasure to announce that Professor Walter N. Lacy of the Anglo-Chinese College at Foochow, China, will act as contributing editor for China. Our readers have already had two short contributions from Professor Lacy in recent numbers of the Journal.

We have also added to our staff during the past year, Professor A. P. Brigham of Colgate University; Professor C. J. Posey of the University of Minnesota; Professor E. J. Saunders of the University of Washington, and Professor A. E. Parkins of the Peabody Teachers College, Nashville, Tenn.

Rand McNally and Co., Chicago, announce the appointment of Professor William H. Mace of Syracuse University as editor of educational texts. Professor Mace is probably better known to the teachers of history than to the teachers of geography, for his writings have been in the historical field. He brings to his new work a wide and successful experience.

NOTICE

We desire to have the letters M.N.C. appear on the address label of each subscriber who is a member of the National Council of Geography Teachers; and so we ask again that any member, who does not find M.N.C. on the address label on the wrapper of his magazine, notify at once the Circulation Manager of the Journal of Geography, Appleton, Wis.